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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,783	12/29/2003	George J. Miao		8710

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EXAMINER

TRINH, SONNY

ART UNIT	PAPER NUMBER
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2618

DATE MAILED: 05/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/748,783	Applicant(s) MIAO, GEORGE J.	
	Examiner Sonny TRINH	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-15 is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☒ Claim(s) 2-11 and 16-19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. **Claims 5 and 16** objected to because of the following informalities:

In **claim 5**, the word "Said" at the beginning of the last line (line 12) should be changed to --"said"--.

In **claim 16**, the semi-colon ";" at the end of the claim (line 15) should be changed to a period --". "--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claim 1** is rejected under 35 U.S.C. 103(a) as being unpatentable over Medvedev et al. (hereinafter "Medvedev"; U.S. Patent Number 6,862,271) in view of Franca-Neto (U.S. Patent Application Publication 2004/0189410 A1) and further in view of Catreux et al. (hereinafter "Catreux"; U.S. Patent Application Publication 2005/0053170 A1).

Regarding claim 1, Medvedev discloses a multimode and Multiband MIMO transceiver (abstract, column 3 lines 50-67) of CDMA, OFDM, TDMA communication comprising::

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a sharing memory bank; (figure 3, element 332), a tri-mode interleaver and tri-mode coding processor (figure 3 element 314, column 20 line 34 to column 21 line 21);
a multiple antenna unit including four identical antennas (figure 3, column 14 lines 10-38).

However, Medvedev does not explicitly disclose that the system is for WLAN, UWB OFDM processing.

In an analogous art, Franca-Neto discloses the ways to provide frequency translation while providing flexibility for operating a high data-rate wireless transceiver. France-Neto further discloses the WLAN, UWB OFDM processing (paragraph [0018]).

Therefore, it would have been obvious for a person of ordinary skill in the art at the time the invention was made to incorporate the WLAN, UWB OFDM, as taught by Franca-Neto to the system of Medvedev to cover a wider range of systems for compatibility.

The combination of Medvedev and Franca-Neto however does not disclose the W-CDMA rake and baseband processor.

In another analogous art, Catreux discloses a frequency selective transmit signal weighting for multiple antenna communication systems (abstract). Cetreux further discloses the W-CDMA rake and baseband processor (paragraph [0060]).

Therefore, it would have been obvious for a person of ordinary skill in the art at the time the invention was made to incorporate the W-CDMA and rake and

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baseband processor, as taught by Catreux to the system of Medvedev and Franca-Neto to further cover a wider range of systems for compatibility.

Allowable Subject Matter

3. **Claims 2-11** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and including the objection to claim 5 as noted above.

Regarding **claim 2**, the applied references fail to disclose or render obvious the claimed limitations specifically wherein the W-CDMA rake and baseband processor further comprises two digital receiver filters coupled to two down samplings, a MUX, two spreaders, a despreader sequence generator, a rake receiver unit, and a descrambler coder generator.

Regarding **claim 4**, the applied references fail to disclose or render obvious the claimed limitations specifically wherein the MIMO-based multimode and multiband RF unit of W-CDMA, WLAN and UWB further comprises four analog bandpass filters, four LNA, four AGC, a sum over block, a selection switch, a W-CDMA down converter and demodulation, a WLAN down converter and demodulation, a multiband UWB down converter and demodulation, and a tri-mode A/D converter unit.

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Regarding **claim 6**, the applied references fail to disclose or render obvious the claimed limitations specifically wherein the dual-mode WLAN and IJWB OFDM processor further comprises:

- a WLAN digital decimation channel select filter unit;

- a controllable selection switch with connecting either a WLLAN input or an UWE input and producing a serial output;

- a dual-mode WLAN and UWB serial-to-parallel (*S/PP*) and Guard removing;

- a dual-mode WLAN and UWB FFT and frequency-domain equalizer (FEQ);

- a dual-mode parallel-to-serial (P/S) with either 64 inputs or 512 inputs in parallel and one serial output;

- a multiband UWB digital receiver filter, despreading and time-domain equalizer (TEQ) unit;

- three S/P and guard removing;

- three FFT and FEQ;

- three P/S with 512 inputs in parallel and one serial output;

- a P/S with four inputs in parallel and one serial output;

- a spreader; and

- a user key sequence generator.

4. Claims 12-15 are allowed.

The following is an examiner's statement of reasons for allowance:

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Regarding **claim 12**, the applied references fail to disclose or render obvious the claimed limitations specifically a multimode and multiband MIMO-based W-CDMA, WLAN, and UWB communication receiver comprising four antennas coupled to a multimode and multiband W-CDMA, WLAN and UWB RF unit; the multimode and multiband W-CDMA, WLAN and UWB RF unit coupled to a W-CDMA rake and baseband processor, a dual-mode WLAN and UWB OFDM processor, a sharing memory bank, and a tri-mode control processor of W-CDMA, WLAN and UWB; said W-CDMA rake and baseband processor, said dual-mode WLAN and UWB OFDM processor, said sharing memory bank, and said tri-mode control processor of W-CDMA, WLAN and UWB coupled to a tri-mode interleaver; and the tri-mode interleaver coupled to a coding processor in which is controlled by said tri-mode control processor of W-CDMA, WLAN and UWB.

Claims 13-15 are allowed by virtue of their dependency on claim 12.

5. **Claims 16-19** would be allowable if rewritten to correct the objection raised as noted above.

Regarding **claim 16**, the applied references fail to disclose or render obvious the claimed limitations; specifically an article comprising a medium storing instructions adapted to be executed to perform a method that causes a processor-based system to set the processor-based system in a receiver mode depending on whether received signals belong to W-CDMA, WLAN or UWB; and set the processor-based system to perform a W169 CDMA function and to turn off WLAN and UWB functions during W-CDMA mode; set the processor-based

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system to perform the WLAN function and to turn off the W-CDMA and the UWB functions during WLAN mode; or set the processor-based system to perform the UWB function and to turn off the W-CDMA and the WLAN functions during UWB mode.


CONCLUSION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sonny TRINH whose telephone number is 571-272-7927. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward URBAN can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

5/18/06



SONNY TRINH
PRIMARY EXAMINER